Discovery

Dividend policy and capital structure: an empirical investigation of foreign country

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ABSTRACT

The paper begins by highlighting the historical background of Standard Chartered Bank, and its evolution over the years, and how it eventually got to set up in business in Botswana. After this, the paper delves into the capital structure and dividend policy theories at length. The theories are at first discussed separately, and then meticulously blended as the report progresses. In addition, after a more general discussion, the topic is narrowed down to reflect on the capital structure subsisting under a banking environment. Empirical evidence from Standard Chartered Bank Botswana is then presented to assist future researchers reflect on how it stands against conventional theory. The result of the empirical study shows positive correlation between capital structure and dividend payment; and an even stronger correlation is evident between earnings per share and dividend payment. The paper, however, ends by recommending further studies using larger sample sizes to minimize sampling errors.

Keywords: Capital Structure, Dividend Policy.

1. INTRODUCTION

In finance, capital structure means the manner in which a company finances its assets through some combination of equity, debt, or hybrid securities. A company's capital structure is then the make-up or 'structure' of its liabilities. The Modigliani-Miller (M&M) theorem, proposed by Franco Modigliani and Merton Miller, shapes the basis for modern thinking on capital structure, though it is generally viewed as purely academic since it assumes away many important factors in the capital structure decision. The theorem states that, in a perfect market, the value of a company is irrelevant to how that company is financed. This result provides the base with which to examine real world reasons why capital structure is relevant. These other reasons include bankruptcy costs, agency costs, taxes, information asymmetry, to name some. This analysis can then be extended to look at whether there is in fact an optimal capital structure: the one which maximizes the value of the company, Assuming a perfect capital market with no transaction or bankruptcy costs, no taxes and with perfect information companies and individuals can borrow at the same interest rate, and investment decisions aren't affected by financing decisions. M&M made two findings under these conditions. Their first 'proposition' was that the value of a company is independent of its capital structure. Their second 'proposition' stated that the cost of equity for a leveraged company is equal to the cost of equity for an unleveraged company, plus an added premium for financial risk. That is, as leverage increases, while the burden of individual risks is shifted between different investor classes, total risk is conserved and hence no extra value created, ibid. Their (M&M) analysis was extended to include the effect of taxes and risky debt. Under a classical tax system, the tax deductibility of interest makes debt financing valuable, that is, the cost of capital decreases as the proportion of debt in the capital structure increases. The optimal structure then would be to have virtually no equity at all, ibid. Accordingly, if capital structure is irrelevant in a perfect market, then imperfections which exist in the real world must be the cause of its relevance. In the next section we look at how when assumptions in the M&M model are relaxed, imperfections arise and how they are dealt with.

The Dividend Policy is a decision made by the directors of a company. It relates to the amount and timing of any cash payments made to the company's stockholders. The decision is an important one for the company as it may influence its capital structure and stock price. In addition, the decision may determine the amount of taxation that stockholders pay. There are three main factors which are thought to influence a company's dividend decision: Free-cash flow; Dividend clienteles and Information signalling.

2. LITERATURE REVIEW

Just like other companies, banks can finance their assets in two ways, either through debt or equity or a combination. As discussed previously, the major early work in capital structure was done by Modigliani and Miller (1958). However, a large number of subsequent studies re-examined the M&M theorem by relaxing the original assumptions, one by one. A common view is that the optimal capital structure of companies is the tradeoff between the effects of debt-favor factors and equity-favor factors. Generally speaking, a tax deduction on interest payments is one of the most cited debt-favor factors, while bankruptcy costs make equity more attractive, Harding et al (2006).

Other things being equal, the more debt a bank has, the higher the risk of bankruptcy. Therefore, banks tend to take lower capital ratio under deposit insurance. This was the findings of Keeley (1990) as well as Marshall & Prescott (2000). In response to the moral hazard problem caused by deposit insurance, capital requirements are used to restrict a bank's ability to borrow and reduce the opportunity to use financial leverage and the tax advantages of debt financing to increase return-on-equity. Thus, under both deposit insurance and capital requirements, banks might be expected to just meet the minimum capital ratio, Harding et al (2006). It would, be noteworthy to point out that Bank of Botswana has stipulated to banks in Botswana a capital adequacy ratio of 15%, which Standard Chartered Bank Botswana has been able to abide by throughout the period looked at in this report.

In the absence of capital requirements, it is most likely that banks will choose extremely low capital ratios or very highly geared capital structures. As such, the function of capital requirements is to raise the cost of insolvency by creating a disincentive for excessive debt, Harding et al (2006).

When the bankruptcy threshold is set by the regulator, such as Bank of Botswana, commercial banks may no longer choose extremely low capital ratios. In this regulatory environment, the bank has to keep its capital ratio above a fixed minimum capital ratio, otherwise, its assets will be liquidated. If the minimum capital ratio requires that the market value of bank assets exceed the face value of debt, the regulation burden dominates insurance benefits, and the bank prefers equity if tax shield is not taken into account. The loss of positive equity value due to capital requirements provides incentives for higher capital ratio.

Banks have unique situations, and it is hard to contemplate another sector of the economy where as many risks are managed jointly as in banking. By its very nature, banking is an attempt to manage multiple and seemingly opposing needs. Banks stand ready to provide liquidity on demand to depositors through the checking account and to extend credit as well as liquidity to their borrowers through lines of credit, Kashyap et al (1999).

Due to these fundamental roles, banks have always been concerned with both solvency and liquidity. Traditionally, banks held capital as a buffer against insolvency, and they held liquid assets – cash and securities – to guard against unexpected withdrawals by depositors or draw downs by borrowers, Saidenberg & Strahan (1999).

In recent years, risk management at banks has come under increasing scrutiny. Banks and bank consultants have attempted to sell sophisticated credit risk management systems that can account for borrower risk, for example rating, and, perhaps more important, the risk-reducing benefits of diversification across borrowers in a large portfolio. Regulators have even begun to consider using banks' internal credit models to devise capital adequacy standards, Cebenoyan & Strahan (2004)

The question then is: Why do banks bother? In a Modigliani –Miller world, companies generally should not waste resources managing risks because shareholders can do so more efficiently by holding a well-diversified portfolio. Banks, which are basically intermediaries, do not exist in such a world, however, ibid. According to Diamond (1984) financial market frictions such as moral hazard and adverse selection problems require banks to invest in private information that makes bank loans illiquid.

Since these loans are illiquid and thus costly to trade, and because bank failure itself is costly when their loans incorporate private information, banks have an incentive to avoid failure through a variety of means, including holding a capital buffer of sufficient size, holding enough liquid assets, and engaging in risk management, Cebenoyan & Strahan (2004)

The view of Miller & Modigliani (1961) is that dividend payment is irrelevant. According to the duo, the investor is indifferent between dividend payment and capital gains. In line with this argument, Black (1976) poses the question, "Why do corporations pay dividends?" As a follow up, he poses a second question, "Why do investors pay attention to dividends?" Even though, the solutions to these questions may appear obvious, he concludes that they are not. The harder we try to rationalize the phenomenon, the more it seems like a puzzle, with pieces that just do not fit together. After over two decades since Black's paper, the dividend puzzle persists.

There are some scholars who emphasize the informational content of dividends. Miller & Rock (1985), for instance, developed a model in which dividend announcement effects emerge from the asymmetry of information between owners and managers. It is argued that dividend announcement provides shareholders and the marketplace the missing piece of information about current earnings upon which their estimation of the company's future earnings is based. These expected future earnings have been found to determine the current market value of a company. The dividend announcement, therefore, provides the missing piece of information and allows the market to ascertain the company's current earnings. These earnings are then used in predicting future earnings. In a study by John & Williams (1985) a signaling model was constructed in which the source of the dividend information is liquidity driven.

3. RESEARCH OBJECTIVES

- To determine the capital structure of Standard Chartered Botswana
- To determine Standard Chartered Botswana' dividend policy
- To ascertain the relationship between Standard Chartered Botswana dividend policy and capital structure
- To develop a model for predicting dividend pay-out

4. RESEARCH METHODOLOGY

The research process entailed a case study analysis of Standard Chartered Botswana. This started with a letter of introduction written by the University of Botswana requesting the management of Standard Chartered Botswana to allow access to their financial statements as well as other relevant information of interest. Getting access was a bit problematic as the author was sent from one branch to the other. However, in the end, the author was directed to the Standard Chartered Botswana website, which incidentally happened to have most of the information needed to conduct the analysis in this paper, as reflected in the paper's objectives. The theme of the paper has been defined within a positivist dimension, and as such a quantitative analysis of the data collected will be conducted to try to prove or disprove some of the underlying assumptions. More specifically, the author is here referring to the fact as to whether there is any relationship between capital structure and dividend policy. Specifically, the author used statistical analysis tools to try to investigate any possibility of a relationship between the two variables- that is, capital structure and dividend payout.

5. DATA ANALYSIS AND FINDINGS

The financial statement data analysis (Appendix 1) shows the bank's gearing rising from 32% in 2003 to 52% in 2007. The increased gearing is attributable mainly to the issuance of bonds by the bank. Specifically, in 2005 the bank issued 3 bonds of P50 million each. Two of these are to be redeemed in 2015, whilst one is due for redemption in 2012. It is, therefore, not surprising that in 2005

the gearing ratio jumped to 46% compared to 26% the previous year. In addition, the bank issued an additional bond for P75 million in 2007 and, as a result, the gearing ratio jumped to 52%. This bond is due for redemption in 2017.

By most accounts, the best indicator of capital structure in banks is the capital adequacy ratio. Capital adequacy ratio is the ratio which determines the capacity of the bank in terms of meeting the time liabilities and other risk such as credit risk and operational risk. In the simplest formulation, a bank's capital is the "cushion" for potential losses, which protect the bank's depositors or other lenders. Banking regulators in most countries define and monitor capital adequacy ratio to protect depositors, thereby maintaining confidence in the banking system. The capital adequacy ratio set by the bank of Botswana is 15%, but Standard Chartered has been able to consistently maintain this ratio at a level above that specified, see (Appendix 1).

Further analysis was done on the data (Appendix 2). When a comparison was made between the gearing and dividend payout ratio, over a period of 5 years (2003 to 2007) there appeared to be some relationship. In general, it appears that when gearing ratio rose or fell the dividend payout ratio followed suit. This observation then prompted the author to calculate the correlation coefficient between gearing and dividend payout ratio (Appendix 3). The correlation coefficient (r) indicates the strength and direction of a linear relationship between two random variables. In this analysis it was assumed that the dividend payout ratio was the dependent variable, whereas the gearing ratio is the independent variable. The results of the analysis showed a positive correlation coefficient of 52%. Based on the correlation coefficient calculated, a coefficient of determination (r^2) was derived as 27%. At this level, it shows that 27% of the changes in dividend payout could be explained by changes in the level of gearing. So, what this means is that 73% of the changes in the dividend payout could be explained by errors or other factors that have not been investigated in this research work.

Despite the high level of errors reflected by the model, the author has nevertheless derived a linear equation to show the relationship between gearing ratio and the dividend payout ratio. The equation is shown as $y = 64.63 + 0.71x + e$ (from Appendix 3). This indicates that in case the gearing ratio is nil, that is, if the bank is wholly equity financed then the dividend payout ratio will be about 65%. But then for every percentage increase in the level of gearing, the payout ratio would increase by 0.71%. The author has tried to build in the level of error by the inclusion of the error factor, which has been denoted by the letter, e, in the model.
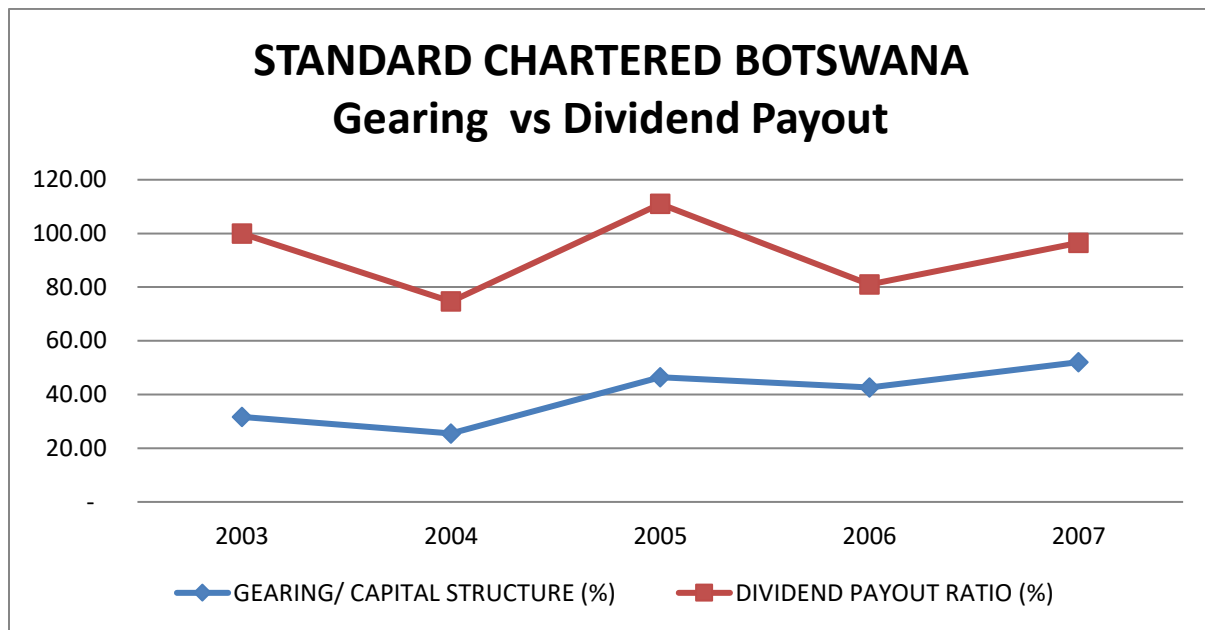
Another analysis on the data was done (Appendix 5) and it showed that there is a strong positive correlation between earnings per share and dividend payout ratio. The correlation coefficient (r) between the two variables stood at 88%, indicating a higher level of reliability in a model of the relationship. Consequently coefficient of determination (r^2) became77%, showing that 77% of the changes in the dividend payout ratio could be explained by changes in the earnings per share. The relationship in this case becomes, $y = 2.88 + 0.88x + e$. In this case, when the earnings per share is nil, then the dividend will be 2.88 thebe per share which will then increase at a rate of 0.88 thebe per 1 thebe in earnings. This implies that the policy at Standard Chartered Botswana is to pay a dividend without failure, year on year. This may partly explain why in 2005, the bank's dividend per share exceeded the earnings per share.

APPENDIXES

Appendix 1

YEAR	2003	2004	2005	2006	2007
	31-Dec	31-Dec	31-Dec	31-Dec	31-Dec
Gearing/ capital structure (%)	31.70	25.51	46.42	42.61	52.07
Earnings per share	43.40	49.75	69.45	89.18	82.92
Dividend per share	43.40	37.14	77.08	72.20	80.00
Dividend cover	100.00	133.95	90.10	123.52	103.65
Dividend payout ratio (%)	100.00	74.65	110.99	80.96	96.48
Capital adequacy ratio	0.16	0.17	0.17	0.17	0.20

Appendix 2

**STANDARD CHARTERED BOTSWANA
Gearing vs Dividend Payout**

Legend: GEARING/ CAPITAL STRUCTURE (%) — DIVIDEND PAYOUT RATIO (%)

Appendix 3

Year	Gearing (x)	Dividend Payout (y)	xy	Year	Gearing (x)
2003	31.70	100.00	3,169.70	2003	31.70
2004	25.51	74.65	1,904.19	2004	25.51
2005	46.42	110.99	5,151.92	2005	46.42
2006	42.61	80.96	3,449.96	2006	42.61
2007	52.07	96.48	5,023.21	2007	52.07
	∑x= 198.30	∑y=463.08	xy=18,698.98		∑x= 198.30

The linear regression equation of y on x is given by:

y = a + bx;

where:

$$b = \frac{\text{Covariance (xy)}}{\text{Variance (x)}} = \frac{n\sum xy - (\sum x)(\sum y)}{n\sum x^2 - (\sum x)^2}$$
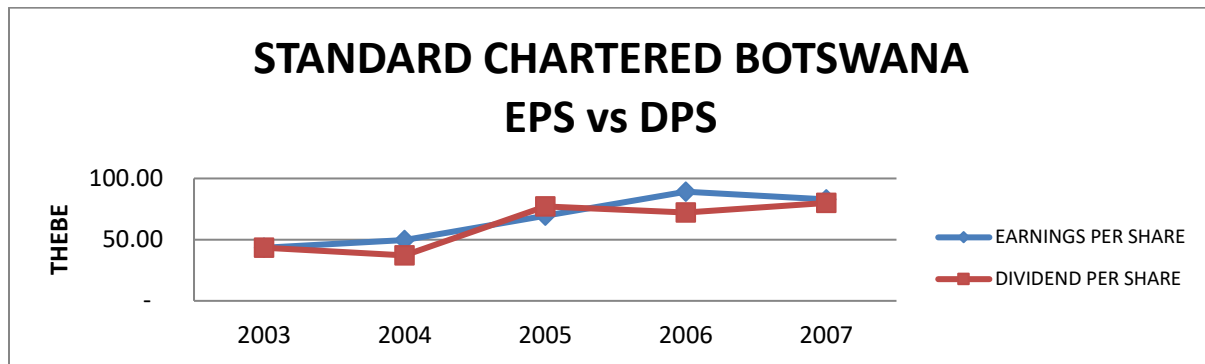
and: a = $\overline{y} - b\,\overline{x}$

y = a + bx, solves to y =64.63+0.71x

Correlation coefficient (r)

$$r = \frac{\text{Covariance (xy)}}{\sqrt{\text{Var(x) Var(y)}}} = \frac{n\sum xy - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

Therefore, r becomes 52% indicating a positive correlation coefficient

Appendix 4

Appendix 5

	EPS (x)	DPS (y)	xy	x^2	y^2
2003	43.4	43.4	1883.56	1883.56	1883.56
2004	49.75	37.14	1847.715	2475.063	1379.38
2005	69.45	77.08	5353.206	4823.303	5941.326
2006	89.18	72.2	6438.796	7953.072	5212.84
2007	82.92	80	6633.6	6875.726	6400
	$\sum x=334.7$	$\sum y=309.82$	$\sum xy=22156.88$	$\sum x^2=24010.72$	$\sum y^2=20817.11$

The linear regression equation of y on x is given by:

y = a + bx;

where:

$$b = \frac{\text{Covariance (xy)}}{\text{Variance (x)}} = \frac{n\sum xy - (\sum x)(\sum y)}{n\sum x^2 - (\sum x)^2}$$

and: a = $\overline{y} - b\,\overline{x}$

y = a = bx, solves to y= 2.88+0.88x

Correlation coefficient (r)

$$r = \frac{\text{Covariance (xy)}}{\sqrt{\text{Var(x) Var(y)}}} = \frac{n\sum xy - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

Therefore, r becomes 88% indicating a very strong positive correlation coefficient, and higher data reliability.

6. CONCLUSION AND RECOMMENDATIONS

The capital structure of Standard Chartered Botswana shows that the bank is well capitalized as shown by the gearing ratio. Perhaps a better indicator of the capital structure of Standard Chartered Botswana is its capital adequacy ratio which has been consistently

above the bank of Botswana recommended level. A trend analysis of the dividend payout shows that Standard Chartered bank has consistently paid a minimum amount of dividend, with an extra dividend. The most convincing conclusion on this comes from the derived model on the relationship between earnings per share and dividend payout. The result of the analysis showed that there would at least be a minimum amount of dividend, even in case the bank does not make a profit. The data analysis also showed that there is some positive correlation between the gearing level and the dividend payout ratio, although it ought to be noted that such a relationship has been shown not to be strong. Most importantly, the study has established a very strong positive correlation between earnings per share and dividend payout in Standard Chartered Bank Botswana. This discovery put to question whether the dividend policy is based on regular plus an extra dividend or its more on a free cash flow basis. Finally, the author would like to point out that there are several ways in which the study could be improved, the immediate one being to increase on the sampling size. It would, therefore, be interesting to find out how the results would come out should a larger sample size be used.

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